entered or considered, but instead that the continued examination of the captioned application be based on the amendments and remarks contained in this Preliminary Amendment. There are no amendments to the specification or drawings in this Preliminary Amendment.

Filed concurrently herewith is a one-month Petition for Extension of Time under 37 CFR 1.136(a) and appropriate fees for the Petition for Extension of Time.

Amendments to the Claims

1. (Currently Amended): A compact fuel processor for converting a hydrocarbon fuel feed into a purified hydrogen rich gas, comprising:

   a reforming stack for converting the hydrocarbon fuel feed into a hydrogen rich gas, wherein the reforming stack includes a first plurality of cylindrical vessels, each of said first plurality of cylindrical vessels s stackable without the need for connecting piping between each vessel; and

   a purification stack for producing the hydrogen rich gas suitable for direct feed to a fuel cell.

2. (Currently Amended): The compact fuel processor of claim 1, ~~wherein the reforming stack includes a first plurality of cylindrical vessels, wherein the first plurality of cylindrical vessels are stackable without the need for connecting piping between each vessel; and~~ wherein the purification stack includes a second plurality of cylindrical vessels, wherein the plurality of cylindrical vessels are stackable without the need for connecting piping between each vessel.

3. (Original): The compact fuel processor of claim 2, wherein the reforming stack is aligned vertically.

4. (Original): The compact fuel processor of claim 1, wherein the reforming stack comprises a shift vessel, an autothermal reforming vessel, and an anode tail gas oxidation vessel; and wherein the purification stack comprises a preferred oxidation vessel, a first

desulfurization vessel, and a second desulfurization vessel.

5. (Original): The compact fuel processor of claim 4, wherein the hydrocarbon fuel feed is sequentially introduced to: first, to the anode tail gas oxidation vessel to produce a preheated hydrocarbon fuel feed; second, to the first desulfurization vessel to produce a desulfurized hydrocarbon fuel feed; third, to the autothermal reforming vessel to produce a first intermediate hydrogen stream; fourth, to the second desulfurization vessel to produce a desulfurized intermediate hydrogen stream; fifth, to the shift vessel to produce a second intermediate hydrogen stream; and sixth, to the preferential oxidation vessel to produce the hydrogen rich gas.

6. (Original): The compact fuel processor of claim 5, wherein the anode tail gas oxidation vessel comprises: an oxidation core containing a water gas shift catalyst for oxidizing fuel cell anode tail gas to produce a hot exhaust gas; and a first finned section having a plurality of external vertical fins surrounding the oxidation core for dissipating the heat of reaction produced within the oxidation core; wherein the hydrocarbon fuel feed is introduced to the first finned section to produce the preheated hydrocarbon fuel feed.

7. (Original): The compact fuel processor of claim 6, further comprising a heat exchanger for heating water with the hot exhaust gas to produce a preheated water stream.

8. (Original): The compact fuel processor of claim 5, wherein the autothermal reforming vessel comprises: a reforming core containing an autothermal reforming catalyst for reacting the desulfurized hydrocarbon fuel feed, the preheated water stream, and air to produce the first intermediate hydrogen stream; and a spiral exchanger section surrounding the reforming core; wherein the spiral exchanger section contains two channels for preheating the desulfurized hydrocarbon fuel

feed with the first intermediate hydrogen stream.

9. (Original): The compact fuel processor of claim 5, wherein the shift reactor vessel comprises: a shift core containing a water gas shift catalyst for reacting the desulfurized intermediate hydrogen stream and water to produce the second intermediate hydrogen stream; and a second finned section having a plurality of external vertical fins surrounding the shift core for dissipating the heat of reaction produced in the shift core; wherein the desulfurized intermediate hydrogen stream is preheated in the second finned section prior to being introduced to the shift core.

10. (Original): The compact fuel processor of claim 5, wherein the first desulfurization vessel comprises a desulfurization catalyst bed for substantially desulfurizing the preheated hydrocarbon fuel feed to produce a desulfurized hydrocarbon fuel feed.

11. (Original): The compact fuel processor of claim 5, wherein the second desulfurization vessel comprises a desulfurization catalyst bed for substantially desulfurizing the first intermediate hydrogen stream to produce a desulfurized intermediate hydrogen stream.

12. (Original): The compact fuel processor of claim 5, wherein the preferred oxidation vessel comprises: a preferred oxidation catalyst bed for reacting air and the second intermediate hydrogen stream to produce the hydrogen rich gas; and a heat exchange chamber for cooling the hydrogen rich gas with water in a cooling coil.

13. (New): A compact fuel processor for converting a hydrocarbon fuel feed into a purified hydrogen rich gas, comprising:

a reforming stack for converting the hydrocarbon fuel feed into a hydrogen rich gas, wherein the reforming stack comprises a plurality of cylindrical modular units, each of said plurality of

cylindrical modular units are stackable, separable, and performs a separate operational function; and

a purification stack for producing the hydrogen rich gas suitable for direct feed to a fuel cell.

14. (New): The compact fuel processor of claim 13, wherein the plurality of cylindrical modular units of the reforming stack comprises a shift vessel, an autothermal reforming vessel, and an anode tail gas oxidation vessel.

15. (New): The compact fuel processor of claim 13, wherein the purification stack comprises a plurality of cylindrical modular units, each of said plurality of cylindrical modular units are stackable, separable, and performs a separate operational function.

16. (New): The compact fuel processor of claim 15, wherein the plurality of cylindrical modular units of the purification stack comprises a preferential oxidation vessel and a desulfurization vessel.